

REMARKS

Reconsideration of the application is respectfully requested for the following reasons:

I. Amendments to the Specification and Claims

The specification has been amended to correct the informalities indicated by the Examiner.

Claims 2, 9 and 12 have been amended to correct the informalities indicated by the Examiner.

Claims 7 and 8 have been canceled without prejudice or disclaimer to the subject matter therein.

Claims 1, 2, 6, 9-17 and 19 have been amended to make the claimed subject matters more clearly distinguishable over the cited references.

Claim 21 and 22 have been newly added herein.

II. Rejection of Claims 1-20 Under U.S.C. 103(a) as being unpatentable over kalnin (U.S. 3,691,000) in view of Dubowik et al. (U.S. 5,280,091) further in view of Yamato et al. (U.S. 4,451,637)

This rejection is respectfully traversed on the grounds that Kalnin, Dubowik et al. and Yamamoto et al. fail to disclose or suggest the following positively recited features:

- a. in which a layer of fiber mesh is provided in a mold, an unhardened epoxy resin mixture is cast onto the fiber mesh in the mold and the mold is vibrated to remove air bubbles from the unhardened epoxy resin mixture, as defined in claim 1;
- b. in which prior to the vibrating step, the fiber mesh providing step and the unhardened epoxy resin mixture casting step are repeated at least twice,

as defined in claim 21 (and supported by page 8, line 12 to page 9, line 3 of the original specification);

- c. in which a fiber reinforced epoxy resin product comprises a hardened epoxy resin mixture including epoxy resin, silica and a fibrous material and at least one layer of fiber mesh arranged parallel to each other in the hardened epoxy resin mixture, as defined in claim 9;
- d. in which a fiber reinforced epoxy resin panel comprises a hardened epoxy resin mixture including resin, silica and a fibrous material and at least three layers of fiber mesh arranged parallel to each other in the hardened epoxy resin mixture, as defined in claim 14; and
- e. in which a vehicle block structure comprises a body including a hardened epoxy resin mixture containing epoxy resin, silica, rubbles and reinforcing fibrous material, as defined in claim 19.

Specifically, in a method for manufacturing a fiber reinforced epoxy resin products of the present invention, a layer of fiber mesh is provided in a mold and an unhardened epoxy resin mixture is cast onto the fiber mesh in the mold; and the mold is then vibrated to remove air bubbles from the unhardened epoxy resin mixture (claim 1). In particular, prior to the vibrating step, the fiber mesh providing step and the unhardened epoxy resin mixture casting step are repeated at least twice (claim 21). Further, the present invention is directed to a fiber reinforced epoxy resin product (or panel) comprising a hardened epoxy resin mixture including epoxy resin, silica and a fibrous material and at least one layer of fiber mesh (or at least three layers of glass fiber roving cloth) arranged parallel to each other in the hardened epoxy resin mixture (claim 9 or claim 14); and to a vehicle block structure comprising a body including a hardened epoxy resin mixture including epoxy resin, silica and a fibrous material (claim 19).

In contrast, Kalnin merely discloses hybrid fibrous reinforcing laminae comprising a plurality of lamina of glass fiber and a plurality of carbon fiber; Dubowik et al. teach the adjustment of cure temperatures and curing times for polyepoxide resins is

within the discretion of the formulator; and Yamamoto et al. teach epoxy resin composition may include inorganic fillers, fire retardants and the like. None of them, however, disclose or suggest the inventive features of the present invention, i.e., the steps of casting the unhardened epoxy resin mixture onto the fiber mesh in the mold and vibrating the mold to remove air bubbles from the unhardened epoxy resin mixture (claim 1); and the step of repeating the fiber mesh providing step and the unhardened epoxy resin mixture step prior to the vibrating step (claim 21).

Further, these references also do not disclose or teach a fiber reinforced epoxy resin product (or panel) comprising a hardened epoxy resin mixture including epoxy resin, silica and a fibrous material and at least one layer of fiber mesh (or at least three layers of glass fiber roving cloth) arranged parallel to each other in the hardened epoxy resin mixture (claim 9 or claim 14); and a vehicle block structure comprising a body including a hardened epoxy resin mixture including epoxy resin, silica and a fibrous material (claim 19).

As stated above, the prior art references do not show the inventive features of the present invention as set forth in independent claims 1, 9, 14 and 19. Accordingly, it is respectfully submitted that claims 1, 9, 14 and 19 define patentable inventions over the prior art reference and, therefore, allowable.

It is also believed that the remaining claims, which directly or indirectly depend on the independent claims, are allowable for the same reasons indicated with respect to the independent claims and further because of the additional features recited therein which, when taken alone and/or in combination with the features recited in the independent claims, remove the invention defined therein further from the disclosures made in the cited reference.


Applicants believe that this is a full and complete response to the Office Action. For the reasons discussed above, applicants now respectfully submit that all of the pending claims are in complete condition for allowance. Accordingly, it is requested that

claims 1-22 be allowed in their present form. If the Examiner feels that any issues that remain require discussion, it is respectfully requested that the Examiner contact applicant's undersigned attorney to resolve the issues, preferably by telephone.

Respectfully submitted
For applicant,

Dated: July 30, 2003

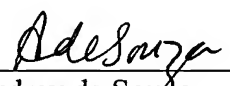
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CERTIFICATE OF MAILING

I hereby certify that this AMENDMENT AND RESPONSE is being deposited with the U.S. Postal Service as First Class Mail in an envelope addressed to: Mail Stop: Non Fee Amendment, Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450 on July 30, 2003.


Audrey de Souza